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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of:

Inventor(s)	:	Pedlow, Jr., et al.
Filed	:	3/8/2004
Application No.	:	10/795,929
Confirmation No.	:	1819
Group Art Unit	:	2136
Examiner	:	Johnson, Carlton
Docket Number	:	SNY-T5718.02
Title	:	Default Encryption and Decryption

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING / FAX TRANSMISSION / ELECTRONIC TRANSMISSION
I hereby certify that this correspondence is, on the date shown below, being:

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Applicant, Assignee or Reg. Representative: Jerry A. Miller, Reg. No. 30779

Signature: /Jerry A. Miller 30779/ Date: _10/5/2007_

DECLARATION UNDER RULE 131

I, Leo M. Pedlow, Jr., and Davender Agnihotri, do hereby declare and state as follows:

- That I am the person named as an inventor of the above-referenced patent application;
- That prior to June 20, 2003, I and my coinventor conceived the invention as claimed in the above patent application as a result of identification of a problem that occurs when a reboot takes place in a device known as a BNG (a Broadcast Network Gateway);
- The resulting problem is that copyright content, some of which may be inappropriate for viewing by minors for example, may be broadcast without being encrypted for some time after a BNG reboot;
- That inventor Pedlow documented this problem and the solution we conceived in an email to a subcontractor that writes firmware code for the BNG device prior to June 20, 2003;
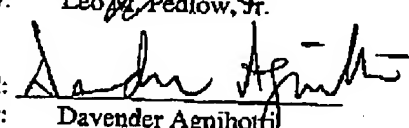
Application No.: 10/795,929

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- That EXHIBIT A is a copy of this email;
- The term "Passage" as used in this email EXHIBIT A refers to Sony's multiple selective encryption techniques implemented in part in the BNG;
- The date of this email EXHIBIT A has been removed but is prior to June 20, 2003;
- That telephone numbers and email addresses have also been removed;
- That subsequent to the email of EXHIBIT A and prior to June 20, 2003, a series of communications took place between various of the contractor entities and various Sony entities to further define the steps needed to effect implementing a resolution to the reboot problem;
- That subsequent to this exchange of emails, a representative of the contractor sent the email shown as EXHIBIT B to inventor Pedlow indicating that new code was sent to inventor Agnihotri (Dave) for testing;
- That the date of the email of EXHIBIT B and certain names and other recipients have been removed, but the date of the email is prior to June 20, 2003;
- That inventor Agnihotri determined that the code operated properly prior to June 20, 2003, completing a reduction to practice;
- That the proper operation of the code implementing the reboot problem fix in the manner claimed in the above application is affirmed in the email labeled EXHIBIT C;
- That the date of the email of EXHIBIT C and certain names and other recipients have been removed, but the date of the email is prior to June 20, 2003;
- That code incorporating the reboot problem fix was implemented in code revision 13 as is referenced in the email of EXHIBIT C;
- That revision 13 of this code is formally referred to as release Version 1.2.0.13.10 and is further evidence of reduction of the invention to practice;
- That Exhibit D is a first page of release notes for this version of code;
- That the date of the release notes for version 13 of this code has been removed from Exhibit D, but is also prior to June 20, 2003;
- That version 13 of this code was implemented in a cable television system almost immediately upon release and prior to June 20, 2003; and
- I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application and any patent issued thereon.

Signed:
By: Leo M. Pedlow, Jr.   Dated: 12/4/07

Signed:
By: Davender Agnihotri   Dated: 10/4/07

Application No.: 10/795,929

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From: Pedlow, Lee
Sent:
To: Szabo, Scott
Cc: Agnihotri, Davender
Subject: BNG reboot resolution proposal

EXHIBIT **A**

Scott - Please distribute

BNG Reboot Behavior:

Problem Statement:

When the BNG is rebooted, it defaults to the transport switching and RF states configured prior to reboot. The Passage mode defaults to mode 0 and the state of the DVB-CSA encryption system defaults to clear. No CA related information is contained in the outgoing PSI data structures. This initial state of the Passage and CA system persists until the CA system EIS and BNG negotiates a connection via TCP/IP and upon discovering the now unprovisioned state of the BNG, the EIS reprovisions both the CA system and Passage function to configure the services to be encrypted and the Passage modes to employ. The CA system state is not retained in non-volatile storage on the BNG.

As a result, if an operating BNG configured for encrypted services is rebooted, upon restoration of RF output from the BNG all services will be sent in the clear until such time that the BNG and CA system reestablish a connection and the encryption subsystem of the BNG is reprovisioned to encrypt the services being broadcast. If the CA system is unable for any reason to reconnect to the BNG, the services will remain in the clear indefinitely.

This presents issues for the operator regarding content protection, children's access to

inappropriate content, etc. if the BNG is rebooted or otherwise reset.

Sony Proposed Resolution:

Sony proposes that the BNG firmware be modified to track either the PIDs of interest (via a checkbox on the UI) or those PIDs that are being encrypted by the DVB-CSA system and this list of PIDs stored in a file in the non-volatile memory in the BNG as is other configuration information. Upon reboot, the BNG will read the stored file and immediately encrypt only those PIDs using a fixed, default codeword. In addition, Passage start of frame mode will be also employed on the related services. It is not necessary for the PSI to reflect this state since there is no valid CASID and the system is not yet under CA control at this point. The normal booting process and operation of the BNG is continued.

Upon reconnection of the BNG with the CA system EIS, the CA system will be provisioned normally and upon implementation of the first cryptoperiod, the static value in the DVB-CSA encryption subsystem will be overwritten with the proper dynamic key as part of the normal function. This method will result in the shadow PIDs being "forced" through the default to SOF mode and they will be obscured by a non-recoverable key during reboot until normal CA control is resumed. If there is no resumption of CA control, only the alternative CA controlled content stays black. The legacy services, controlled through the legacy CA in the IRT, will function normally regardless of the alternative CA provisioning state. The legacy system also defaults to a "black" screen until positive CA control is regained from the HITS headend, so the end result of the BNG change is equivalent when comparing the operation of the two CA systems under reboot conditions.

The proposed changes are equivalent to entering "scrcm 4 0xPID 3 0xCW1 0xCW2" from the console of an NSG immediate after boot and then attempting provisioning with a CA system at a later time. PID is the hex PID value of a shadow audio or video component and CW1 & CW2 are the hex values for the default codeword to be used to encrypt the component. This technique was used in the very early Passage tests prior to CA integration.

Please let me know if the proposal is practical.

Best regards,

Lee Pedlow (リー ペドロ)
Systems Engineering
Sony DPA
San Diego, CA

CONFIDENTIAL

EXHIBIT **B**

From: I
Sent:
To: 'Pedlow, Lee';

Cc: 'Agnihotri, Davender'
Subject: RE: BNG reboot resolution proposal

Lee,

We sent Dave the new code for testing. After Dave will come back with his feedback, we will work to add your requests.

EXHIBIT **C**

From:
Sent:
To: 'Agnihotri, Davender'; 'Pedlow (Pedlow, Lee)'
'Noam Adika'; 'Raz'
Subject: RE: BNG code version 13

Dave,

Thank you very much for testing the code. Your help is well appreciated.
By Monday, we will release the new code with the 2 additional features.

Thanks and best regards.

Release Notes for *BNG™ 6102-PSG Version 1.2.0.13.10* (Beta)

Release Date: ████████████

Table of Contents

EXHIBIT **D**

1. Identification

This release contains firmware and documentation for the BNG™ (Broadcast Network Gateway) 6102-PSG device, version 1.2.0.13 (Beta).

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2. Release Contents Overview

2.1 The main components included in this release are:

o BNG Firmware version **01.02.00.0013** . The Firmware (file BNG6104PSG_102) is included under the *BNG_Firmware* directory. The BNG Web Client (HTTP-based onboard user interface) is packaged as an integral part of the Firmware, and does not need to be installed separately. The BNG Web Client may be accessed through MS Internet Explorer version 5.0 or higher, and provides means for configuring and monitoring a single BNG device.

2.2 Additional components:

In addition, this installation package includes the following components:

o **BNG 6102-PSG User's Guide.** This guide provides the following information:

1. General review of the product's features and specifications.
2. Instructions for starting up the device and configuring its Ethernet communication parameters.

Once Ethernet communication is established, the device may be configured through its Web-client, which also includes online help to guide you through the various configuration and monitoring tasks.

3. Configuring and operating the device.

Note: the guide is provided in PDF format. To read it, you must have Acrobat Reader® installed on your computer.